LOGGED BY	BEGIN DATE	COMPLETION DATE	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID
M. McKee	1-15-08	1-16-08	N2120901.487 / E5997123.148 (NAD83)	MPTNB-R5
DRILLING CONTRACTOR			BOREHOLE LOCATION (Offset, Station, Line)	SURFACE ELEVATION
Gregg Drilling and Testing, Inc.			Offset 111ft R Sta 54+19 NB Alignment	15.035 ft (NAVD88)
DRILLING METHOD			DRILL RIG	BOREHOLE DIAMETER
Mud Rotary			Fraste Multi-drill (track)	5 in.
SAMPLER TYPE(S) AND SIZE(S) (ID)			SPT HAMMER TYPE	HAMMER EFFICIENCY, ERi
MC (2.4"), SPT (1.4"), Grab, Shelby (2.87"), Pitcher (2.87")			Automatic, 140 lbs., 30-inch drop	72.9%
BOREHOLE BACKFILL AND COMPLETION			GROUNDWATER READINGS DURING DRILLING / AFTER DRILLING (DATE)	TOTAL DEPTH OF BORING
Neat Cement Grout backfill			5.5	181.5 ft

ELEVATION (ft)	DEPTH (ft)	Description	Sample Location	Sample Number	Blows per 6 In	Blows per Foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
	0	3" ASPHALT CONCRETE												
	1	Poorly graded GRAVEL with SAND (GP), reddish brown, moist, trace CLAY (chert fragments). [FILL]		S1										
13.04	2	CLAYEY SAND with GRAVEL (SC), yellowish brown, damp, some pockets of brown to reddish brown CLAYEY SAND, GRAVEL is fine to coarse, subrounded (siltstone and sandstone fragments).		S2										
	3			S3	4 4 4	8	89		9.2	119.1				
11.04	4			S4	2 3 3	6	100							
	5													
9.04	6													
	7	7.0', hydrocarbon odor detected.		U5		50 psi	73							
7.04	8	CLAYEY SAND (SC), dark greenish gray, wet, fine, occasional pockets (up to 1/4" diameter) of dark gray fine, clean SAND. [MARINE SAND]												PA
	9										TV = 0.35			
5.04	10													
	11	Fat CLAY (CH), very soft, dark gray, wet,organic odor, trace fine SAND, with black specks. [BAY MUD]												
3.04	12			U6		0 psi	100							
	13								85	92.3				
1.04	14	CLAYEY SAND (SC), very loose, dark gray, wet, fine. [MARINE SAND]												PI, LL, C
	15			S7	0 0 2	2	22							
-0.97	16													
	17			S8	3 4 5	9	67							
-2.97	18	Poorly graded SAND with CLAY (SP-SC), very loose, dark gray, wet, fine.							22.2	128.3				
	19			S9	3 8 13	21	100							
-4.97	20	Poorly graded SAND (SP), medium dense, olive gray, wet, fine to medium.												
	21													
-6.97	22	Gray and dark gray SANDY Lean CLAY (CL), soft, gray and dark gray, very moist. [BAY MUD]												21.5', Bay Mud based on cuttings
	23	Poorly graded SAND (SP), loose, olive gray, moist, fine to medium. [MARINE SAND]		U10		0 psi	93							
-8.97	24	SANDY Lean CLAY (CL), soft, dark gray, wet, SAND is fine, with lenses of CLAYEY SAND. [SANDY BAY MUD]												
	25			S11		10	100							

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BORING RECORD				MPTNB-R5
DIST.	COUNTY	ROUTE	POSTMILE	EA
4	S.F.	101	8.3/9.4	163701
PROJECT OR BRIDGE NAME				
Doyle Drive Replacement Project				
BRIDGE NUMBER	PREPARED BY		DATE	SHEET
34-0163R	T. Carroll		11-3-08	1 of 7

CALTRANS FORMAT DOYLEDRIVE_ARUPLOGS_11-2-08.GPJ ARUP LIBRARY_CALTRANS FORMAT.GLB 11/3/08

Figure

ELEVATION (ft)	DEPTH (ft)	Material Graphics	Description	Sample Location	Sample Number	Blows per 6 In	Blows per Foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
	25		Poorly graded SAND (SP), medium dense, grayish brown, moist to very moist, fine. [MARINE SAND]			2 4 6									
-10.97	26		CLAYEY SAND (SC), medium dense, very dark gray, moist to very moist, fine, with lenses of SANDY CLAY. [BAY MUD]												
	27				S12	4 11 13	34	67							
-12.97	28		Poorly graded SAND with SILT (SP-SC), dense, yellowish brown, moist, fine. [COLMA SAND]												
	29				S13	11 18 31	49	100		22.1 25.7 21.8	133.2 131.5 129.5	DS = 1.296 DS = 1.806 DS = 2.532		PA	
-14.97	30														
	31														
-16.97	32				S14	25 48 50/ 4.5"	98/ 10.5"	67							
	33		Grades very dense.												
-18.97	34				S15	20 46 50/4"	96/10"	100							
	35														
-20.97	36														
	37				S16	42 54/5"	54/5"	100							
-22.97	38				S17	21 54/6"	54/6"	100							
	39														
-24.97	40														
	41														
-26.97	42				S18	26 41 51	92	67		20.4	133			PA	
	43		42.5 - 43.5', sub-horizontal iron-oxide stains.												
-28.97	44		44.0', grades dark grayish brown.		S19	25 45 50/3"	95/9"	83							
	45														
-30.97	46														
	47				S20	30 43 49	92	67							
-32.97	48														
	49				S21	29 50/5"	50/5"	100							
-34.97	50														
	51		CLAYEY SAND (SC), very dense, dark yellowish brown, moist, fine, some sub-horizontal iron-oxide seams.												
-36.97	52				S22	21 21 54	75	100		20.8				PA	
	53		53.0 - 53.5', grades to brownish gray, with iron-oxide laminations.												
-38.97	54														
	55														

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BORING RECORD				MPTNB-R5
DIST.	COUNTY	ROUTE	POSTMILE	EA
4	S.F.	101	8.3/9.4	163701
PROJECT OR BRIDGE NAME				
Doyle Drive Replacement Project				
BRIDGE NUMBER	PREPARED BY		DATE	SHEET
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Figure

CALTRANS FORMAT DOYLEDRIVE_ARUPLOGS_11-2-08.GPJ ARUP LIBRARY_CALTRANS FORMAT.GLB 11/3/08

ELEVATION (ft)	DEPTH (ft)	Material Graphics	Description	Sample Location	Sample Number	Blows per 6 In	Blows per Foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
	55		CLAYEY SAND (SC), very dense, dark yellowish brown, moist, fine, some sub-horizontal iron-oxide seams.												
-40.97	56														
	57				S23	9 12 15	27	100							
-42.97	58														
	59		Poorly graded SAND with SILT (SP-SM), dense, dark greenish gray, moist, very fine.												Drilling rate increased ~59' per driller
-44.97	60														
	61														
-46.97	62				S24	23 15 24	39	100							
	63														
-48.97	64														
	65														
-50.97	66														66' - 67', slower drilling
	67		Grades very dense.		S25	38	50/ 4.5"	95							
-52.97	68				S26	50/ 4.5"	70	100		20.7 22	135.4 135.2	DS = 3.45			PA
	69					16 27 43				19.9	133.7	DS = 3.972 DS = 4.5055			
-54.97	70														
	71														
-56.97	72				S27	17 23 27	50	100							
	73														
-58.97	74														
	75														
-60.97	76														
	77		Grades dense, with lenses of fat CLAY with SAND.		S28	13 14 16	30	100							
-62.97	78														
	79														
-64.97	80														
	81														
-66.97	82		Fat CLAY with SAND, dark gray to bluish gray, wet, SAND is fine. [OLD BAY CLAY]		S29										82', slow drilling 82', Drillers grease in sample
-68.97	83														
	84														
	85														

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BORING RECORD				MPTNB-R5
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BRIDGE NUMBER	PREPARED BY		DATE	SHEET
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CALTRANS FORMAT DOYLEDRIVE_ARUPLOGS_11-2-08.GPJ ARUP LIBRARY_CALTRANS FORMAT.GLB 11/3/08

Figure

ELEVATION (ft)	DEPTH (ft)	Material Graphics	Description	Sample Location	Sample Number	Blows per 6 In	Blows per Foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
	85		Fat CLAY with SAND, dark gray to bluish gray, wet, SAND is fine. [OLD BAY CLAY]												
-70.97	86														
	87														
			Fat CLAY (CH), very stiff, greenish gray, moist, blocky, trace fine SAND.		U30		350 psi, 500 psi	50		37.3	115.2				PI, LL, C
-72.97	88														
	89											PP = 1.63, 1.88, 1.9 TV = 1.0, 1.25			
-74.97	90														
	91														
-76.97	92														
	93														~93', faster drilling
-78.97	94														
	95														
-80.97	96														
	97				U31		RWO	100							
-82.97	98									55.1	104.2	UU = 1.66			PI, LL
	99		Grades with white shell fragments, stiff to very stiff.							53.6	105.8	UU = 1.31			
-84.97	100											PP = 0.9, 1.1, 1.15 TV = 0.69			
	101														
-86.97	102														
	103														
-88.97	104														
	105														
-90.97	106		~106.0' - 112.0', grades with fine black sand and shells based on cuttings.												
	107														
-92.97	108														
	109														
-94.97	110														
	111														
-96.97	112				S32	4 6 8	14	100							
	113		112.5', grades stiff with black specks, 1/4" diameter carbon nodules, without shells.							47.9	111.5	UU = 0.74			PI, LL
-98.97	114											PP = 0.63, 0.65,			
	115														

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Figure

ELEVATION (ft)	DEPTH (ft)	Material Graphics	Description	Sample Location	Sample Number	Blows per 6 In	Blows per Foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
	115		Fat CLAY (CH), very stiff, greenish gray, moist, blocky, trace fine SAND.									0.68, 0.63, 0.63 TV = 0.63			
-100.97	116														
	117														
-102.97	118														
	119														
-104.97	120														
	121														
-106.97	122														
	123														
-108.97	124														
	125														
-110.97	126														
	127				U33			47							
-112.97	128		128.0', 3/4" diameter piece of wood.									TV = 0.52, 0.7			
	129														
-114.97	130														
	131														
-116.97	132														
	133														
-118.97	134														
	135														
-120.97	136														
	137														
-122.97	138														
	139		139.0', grades with dark brown pieces of wood and peat.		S34										
-124.97	140				U35		0 psi 700 psi 0 psi	27							
	141		Poorly graded SAND (SP), dense to very dense, dark olive gray, moist, fine, with lenses of SANDY CLAY. [DEEP MARINE SAND]												
-126.97	142														
	143		Fat CLAY (CH), hard, gray, moist, trace fine SAND. [OLD BAY CLAY]		S36	14 15 16	600 psi 31	100				PP = 2.13, 2.13			
-128.97	144														
	145														144.5' - 146.5', faster drilling

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PROJECT OR BRIDGE NAME: Doyle Drive Replacement Project				
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Figure

ELEVATION (ft)	DEPTH (ft)	Material Graphics	Description	Sample Location	Sample Number	Blows per 6 In	Blows per Foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
	145		Fat CLAY (CH), hard, gray, moist, trace fine SAND. [OLD BAY CLAY]												
-130.97	146														146.5' - 147', slow drilling
	147														147' - 155', faster drilling
-132.97	148														
	149														
-134.97	150														
	151														
-136.97	152														
	153														
-138.97	154														
	155				U37		0 psi	100							
-140.97	156									33.9	117.9				PI, LL, C
	157														
-142.97	158											PP = 0.63, 0.63, 0.63 TV = 0.55			
	159														
-144.97	160														
	161														
-146.97	162														
	163														
-148.97	164														
	165														
-150.97	166														
	167														
-152.97	168		Grades with trace fine SAND.												168', faster drilling
	169														
-154.97	170														
	171														
-156.97	172														
	173		172.5' - 175.0', grades with shells.												172.5', rig chatter
-158.97	174														
	175														

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PROJECT OR BRIDGE NAME				
Doyle Drive Replacement Project				
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Figure

ELEVATION (ft)	DEPTH (ft)	Material Graphics	Description	Sample Location	Sample Number	Blows per 6 In	Blows per Foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
	175		Fat CLAY (CH), hard, gray, moist, trace fine SAND. [OLD BAY CLAY]		U38		450 psi, 1000 psi	67							
-160.97	176									16.8	137.7	UU = 1.87			PI, LL
	177		MELANGE MATRIX, dark gray, moist, shale with sandstone and siltstone fragments, crushed, very weak, moderately weathered, clayey. [MELANGE MATRIX]							12.6	145.1	UU = 1.25			
-162.97	178														
	179														
-164.97	180		Grades light greenish gray with SAND, more CLAY.		U39		600 psi, 1000 psi	78							
	181									8.8	149.1	UU = 9.23			PI, LL
-166.97	182		Borehole terminated at a depth of 181.5 feet on 1/16/2008.												
	183		See Boring Record Legend for soil classification chart and key to test data and sampler type.												
-168.97	184														
	185														
-170.97	186														
	187														
-172.97	188														
	189														
-174.97	190														
	191														
-176.97	192														
	193														
-178.97	194														
	195														
-180.97	196														
	197														
-182.97	198														
	199														
-184.97	200														
	201														
-186.97	202														
	203														
-188.97	204														
	205														

CALTRANS FORMAT DOYLEDRIVE_ARUPLOGS_11-2-08.GPJ ARUP LIBRARY_CALTRANS FORMAT.GLB 11/3/08

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PROJECT OR BRIDGE NAME				
Doyle Drive Replacement Project				
BRIDGE NUMBER	PREPARED BY		DATE	SHEET
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Figure